ABSTRACT OF THE DISCLOSURE

A process gas containing any one of N_2 or N_2O is converted to a plasma plasmanized and then a surface of a copper wiring layer is exposed to the plasma of the plasmanized process gas, whereby a surface layer portion of the a copper wiring layer is reformed and made into a copper diffusion preventing barrier layer. According to this method, a noble semiconductor device can be provided, in which, having along with increased the operation a and less speed, the copper diffusion is suppressed.